



Europäisches Patentamt

(19)

European Patent Office

(11) Publication number:

0 238 023

Office européen des brevets

A3

(12)

## EUROPEAN PATENT APPLICATION

(21) Application number: 87103806.3

(51) Int. Cl.4: C12N 15/00 , //C12N9/20,  
C12N9/30,C12N9/58,C12N9/64

(22) Date of filing: 16.03.87

(30) Priority: 17.03.86 DK 1226/86

(71) Applicant: NOVO INDUSTRI A/S  
Novo Allé  
DK-2880 Bagsvaerd(DK)

(43) Date of publication of application:  
23.09.87 Bulletin 87/39

(72) Inventor: Boel, Esper  
Lyngbakkevej 25  
DK-2840 Holte(DK)  
Inventor: Christensen, Tove  
Boulevarden 10 1.th.  
DK-2800 Lyngby(DK)  
Inventor: Wöldike, Helle Fabricius  
Stendyssevej 13  
DK-3540 Lyngby(DK)

(84) Designated Contracting States:  
AT BE CH DE ES FR GB GR IT LI LU NL SE

(74) Representative: Brown, John David et al  
FORRESTER & BOEHMERT  
Widenmayerstrasse 4/I  
D-8000 München 22(DE)

(88) Date of deferred publication of the search report:  
22.02.89 Bulletin 89/08

(54) **Process for the production of protein products in Aspergillus oryzae and a promoter for use in Aspergillus.**

(57) A process for expression of a protein product in Aspergillus oryzae is disclosed. The process comprises transforming Aspergillus oryzae with a vector system comprising DNA-sequences encoding functions facilitating gene expression, a suitable marker for selection of transformants, and a DNA-sequence encoding the desired protein product. The process enables industrial production of many different polypeptides and proteins in A. oryzae. Examples of such products are chymosin or prochymosin and other rennets, proteases, lipases and amylases. Also disclosed is an effective promoter for expression of a protein in Aspergillus. A preferred promoter is the TAKA-amylase promoter or functional parts thereof.

EP 0 238 023 A3



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)	
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)	
E	EP-A-0 215 594 (GENENCOR, INC.) * Page 4, lines 38-55; examples 1,2,7 * ---	1-7, 12-14, 16, 17	C 12 N 15/00 // C 12 N 9/20 C 12 N 9/30 C 12 N 9/58 C 12 N 9/64	
A	THE EMBO JOURNAL, vol. 3, no. 7, 1984, pages 1581-1585, IRL Press Ltd, Oxford, GB; E. BOEL et al.: "Two different types of intervening sequences in the glucoamylase gene from <i>Aspergillus niger</i> " ---			
A	JOURNAL OF CELLULAR BIOCHEMISTRY, vol. 0, no. 10, part 10A, page 274, abstract no. E109; K. HAYENGA et al.: "Expression and secretion of bovine calf chymosin by <i>Aspergillus nidulans</i> ", & MEETING ON MOLECULAR CELLULAR BIOLOGY (L.A.), FEB. 9th -15th, 1986 * Abstract * ---			
P, X	AGRICULTURAL AND BIOLOGICAL CHEMISTRY, vol. 51, no. 2, February 1987, pages 323-328, Tokyo, JP; Y. IIMURA et al.: "Transformation of <i>Aspergillus oryzae</i> through plasmid-mediated complementation of the methionine-auxotrophic mutation" -----	1	TECHNICAL FIELDS SEARCHED (Int. Cl. 4)  C 12 N	
The present search report has been drawn up for all claims				
Place of search	Date of completion of the search	Examiner		
THE HAGUE	18-09-1988	VAN PUTTEN A.J.		
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document		
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document				